

CLAIMS

1. An optical transmitter comprising:
 - a differential encoder that generates a differentially encoded signal based on a data signal;
 - 5 an RZ (return to zero) encoder that generates an electric RZ differential signal as an RZ signal in an electric area based on the differentially encoded signal output from the differential encoder; and
 - a Mach-Zehnder interferometer type intensity modulator
 - 10 that generates an optical RZ-DPSK (differential phase shift keying) signal as an RZ signal in an optical area based on the electric RZ differential signal.
2. The optical transmitter according to claim 1, wherein
- 15 the optical RZ-DPSK signal is modulated by a differential phase of $(0, \pi)$.
3. The optical transmitter according to claim 2, wherein the differentially encoded signal includes two signals
- 20 of a positive phase differential signal and a reversed phase differential signal obtained by inverting an output of the positive phase differential signal, and
- the electric RZ differential signal includes a positive phase RZ differential signal obtained by
- 25 outputting the positive phase differential signal in synchronism with a clock signal, and a reversed phase RZ differential signal obtained by outputting the reversed phase differential signal in synchronism with the clock signal.
- 30
4. The optical transmitter according to claim 3, wherein the positive phase differential signal is an inverted output of an exclusive OR of a one-bit delayed output from

the own apparatus and the data signal, and

the reversed phase differential signal is a non-inverted output of the exclusive OR.